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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|------------------------|-------------------------------|
| 10/644,791 | 08/19/2003 | Anthony A. Gallo | 3833-030392 (LDEO-108) | 7402 |
| 7590 | 09/20/2005 | | | EXAMINER SELLERS, ROBERT E |
| Webb Ziesenhein Lodsdon Orkin & Hanson, P.C. 700 Koppers Building 436 Seventh Avenue Pittsburgh, PA 15219-1818 | | | ART UNIT 1712 | PAPER NUMBER |
| | | | | DATE MAILED: 09/20/2005 |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|----------------------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/644,791 | GALLO ET AL. |
| | Examiner Robert Sellers | Art Unit 1712 |

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 11 August 2005.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-27 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-27 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____

Art Unit: 1712

1. This application has been transferred due to the departure of Examiner Christopher Keehan. The 35 U.S.C. 103(a) rejections applied in the non-Final rejection mailed May 9, 2005 are hereby rescinded in view of the more pertinent rejections advanced hereinbelow which more strongly pertain to the claimed combination of melamine cyanurate and transition metal oxide flame retardants.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

2. The specification on page 2, paragraph 9, lines 2-3 and paragraph 10, lines 3-4; page 3, paragraph 13, lines 5-6 and paragraph 15, lines 2-3; and page 7, paragraph 27, lines 1-2 as well as claim 1, line 5 denotes "a transition metal oxide containing an oxyanion of a Group IVA element." A transition metal oxide is an oxide of a Group IVA element such as tungsten, molybdenum or chromium. An oxyanion of a Group IVA element is a tungstate, molybdate or chromate anion. There is no chemical compound having both an transition metal oxide and Group IVA oxyanion which would include such non-enabled and chemically unrecognized compounds as tungsten trioxide tungstate, for example.

3. The sole enabled species corresponding to this component include chromium oxides, molybdenum oxides and tungsten oxides (page 7, paragraph 27, lines 3-4). Tungsten oxide, or WO_3 is shown in Table 2A on page 13. The particular type of flame retardant is not concisely defined in the absence of its description and claiming as only a Group IVA metal oxide.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 11, 13 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent No. 10-60229 (Japanese '229).

4. Japanese '229 (translation, page 3, lines 1-7) shows a molding composition comprising an epoxy resin, a melamine cyanurate, 0.21% by weight of molybdenum trioxide, an anhydride hardener, 51.3% by weight of aluminum hydroxide, a 2-ethyl-4-methylimidazole catalyst and a silane coupling agent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gallo Patent No. 6,432,540 and Japanese Patent Nos. 11-269347 (Japanese '347) and 10-212396 (Japanese '396) in view of Japanese Patent No. 11-100492 (Japanese '492).

5. Gallo (col. 1, lines 47-52 and 60-65) discloses a molding composition containing from 4 wt% to about 12 wt% (col. 2, lines 55-57) of a preferred epoxy cresol novolak resin (col. 2, lines 52-53) or a biphenyl epoxy resin, from 1 wt% to about 10 wt% (col. 3, line 1) of a preferred phenol novolac hardener (col. 2, line 65), from about 0.25 wt% to about 2 wt% of a preferred tungsten trioxide (col. 4, lines 35-37), from about 50-95% by weight of a filler and other additives such as a colorant, mold release agent, coupling agent, catalyst and/or ion scavenger (col. 4, lines 40-67).

6. Japanese '347 sets forth a molding composition prepared from a phenol novolak or biphenyl epoxy resin (translation, page 2, paragraph 6, line 3 and paragraph 7, line 2 to page 3, line 1), a phenol aralkyl resin hardener, from 80-95 wt% of an inorganic filler and from 0.5-5.0 wt% of a metal oxide selected from molybdenum oxide and tungsten oxide (page 4, paragraph 11, lines 1-6).

7. Japanese '396 reports a molding formulation derived from an epoxy resin such as a phenol novolak epoxy resin or especially a biphenyl epoxy resin (translation, page 2, paragraph 8, lines 4 and 10), a phenol resin curing agent (page 2, paragraph 9) and from 1-20 parts by weight per 100 parts by weight of the epoxy resin of molybdenum or tungsten trioxide (page 2, paragraph 11).

8. The claimed melamine cyanurate is not recited. Japanese '492 is directed to a molding blend of an epoxy resin such as the exemplified cresol novolak epoxy resin (CAPLUS abstract), a curing agent such as the exemplified novolak phenolic resin or acid anhydride (Patent Abstracts of Japan), from 0-5 wt% of a metal oxide (translation, page 4, paragraph 22) and from 1-20 wt% of melamine cyanurate (CAPLUS abstract, second page, last 1T).

9. It would have been obvious to combine the molybdenum or tungsten trioxide of Gallo and Japanese '347 and '396 with the melamine cyanurate of Japanese '492 in amounts within the disclosed proportion range in order to obtain a balance between fire resistance and solder thermal resistance (translation, page 4, paragraphs 22 and 23).

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese '492 in view of Gallo and Japanese '347.

10. The references are described in previous paragraphs 5, 6 and 8. Japanese '492 espouses metal oxides in general in comparision to the claimed Group VIA metal oxide.

11. It would have been obvious employ the tungsten trioxide of Gallo and Japanese '347 as the metal oxide of Japanese '492 in order to improve the moisture resistance (Gallo, col. 1, lines 28-32 and col. 5, lines 49-51) and to optimize the balance between fire retardance and hardenability (Japanese '347, page 4, paragraph 11, lines 4-5).

Claims 2-10, 12, 14-26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese '229 in view of Gallo.

12. The patents are described in previous paragraphs 4 and 5. Although the particular limitations of these claims are not recited, Gallo establishes the conventional expedient in the analogous art of semiconductor molding composition of using certain amounts of particular epoxy resins such as a cresol novolac or biphenyl epoxy resin, a phenol novolac hardener, or tungsten trioxide which is preferred over the molybdenum trioxide of Japanese '229. It would have been obvious to use the particular proportions of specific kinds of epoxy resin, hardener and tungsten trioxide as taught by Gallo in order to enhance the moisture resistance and electrical reliability at high temperature (col. 1, lines 40-46).

(571) 272-1093 (Fax no. (571) 273-8300) Monday to Friday, 9:30 to 6:00
rs 9/1/2005



ROBERT E.L. SELLERS
PRIMARY EXAMINER